A1

firing the electric propulsion thrusters to raise the orbit of the spacecraft from the orbit achieved by the chemical propulsion thrusters firing step to near geosynchronous orbit [while] by steering the thrust vector both in-plane and out-of-plane while rotating the spacecraft body and steering the solar array to maintain the sun's illumination on the solar array; and

[selectively] firing selected ones of the [chemical and/or electric propulsion] thrusters to achieve final geosynchronous orbit.

A2

3. (Amended) The method recited in Claim 1 wherein the thrust vector is not normal to the axis of the solar array and the thrust vector is steered to provide sufficient solar array power to perform maneuvers and [minimize propellant usage and/or time to] achieve final orbit.

A3

9. (Amended) The method recited in Claim 1 wherein a spacecraft steering profile is generated on the Earth that steers the thrust vector (ΔV) such that the thrust vector is not normal to the axis of the solar array and the thrust vector is steered to provide sufficient solar array power to perform maneuvers and [minimize propellant usage and/or time to] achieve final orbit.

22. (Amended) The method recited in Claim 18 wherein at least two adjacent thrusters on either the North or South side of the spacecraft are used to increase the effective thrust and decrease the duration of the electric orbit raising phase to raise the spacecraft from the orbit achieved by the chemical propulsion thrusters firing step to near geosynchronous orbit.

A4

23. (Amended) A system for raising a spacecraft launched into a transfer orbit about the Earth from the transfer orbit to a geosynchronous orbit, comprising:

a spacecraft comprising chemical and electric propulsion thrusters and a solar array;

a processor onboard the spacecraft for:

firing the chemical propulsion thrusters at apogees of intermediate orbits, starting from the transfer orbit initiated by the launch vehicle, to successively raise perigees of the orbit until the spacecraft perigee substantially clears the Van Allen radiation belts, and where the semi-major axis of the intermediate orbit is substantially less than the semi-major axis of the final orbit, and where the inclination of the intermediate orbit is substantially greater than the inclination of the final orbit;

firing the electric propulsion thrusters to raise the orbit of the spacecraft from the orbit achieved by the chemical propulsion thrusters firing step to near geosynchronous orbit [while] by steering the thrust vector both in-plane and out-of-plane while rotating the spacecraft body and steering the solar array to maintain the sun's illumination on the solar array; and

[selectively] firing selected ones of the [chemical and/or electric propulsion] thrusters to achieve final geosynchronous orbit.

A5

26. (Amended) The system recited in Claim 24 wherein the processor generates a spacecraft steering profile onboard the spacecraft that steers a thrust vector (ΔV) such that the thrust vector is not normal to the axis of the solar array and the thrust vector is steered to provide sufficient solar array power to perform maneuvers and]minimize propellant usage and/or time to] achieve final orbit.

A6

29. (Amended) The system recited in Claim 27 wherein the processor in the ground apparatus determines a spacecraft steering profile for steering the thrust vector produced by the thrusters such that the thrust vector is not normal to the axis of the solar array and generates spacecraft steering commands that implement the spacecraft steering profile wherein the thrust vector is steered to provide sufficient solar array power to perform maneuvers and [minimize propellant usage and/or time to] achieve final orbit, and wherein the communication apparatus uplinks spacecraft steering commands to the spacecraft.

REMARKS

Regarding the status of the present application, Claims 1, 3, 9, 22, 23, 26, and 29 have been amended, and Claims 1-29 are presently pending in this application. Reconsideration of this application is respectfully requested. A Petition and fee for a one month extension of time is enclosed.

In response to the Examiner statement regarding a proper "Information Disclosure Statement", Form PTO-1449 listing references cited in the Background section of the specification is enclosed herewith.

The disclosure was objected to because of informalities noted by the Examiner. The erroneous US patent number noted by the Examiner has been corrected along with providing appropriate patent application serial numbers of the application cited therein. Entry of the above specification amendments and withdrawal of the Examiner's rejection are respectfully requested.

Claims 1, 3, 9, 23, 26 and 29 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner indicated that the use of the phrase "and/or" in the claims renders them indefinite. Claims 1, 3, 9, 23, 26, and 29 have been amended to address the Examiner's issues. It is therefore respectfully submitted that Claims 1, 3, 9, 23, 26, and 29 are now clear and definite. Accordingly, withdrawal of the Examiner's rejection is respectfully requested.

Claims 1-29 were rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 5,716,029 issued to Spitzer et al. Independent Claims 1 and 23 have been amended to more distinctly claim the present invention.